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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,505	10/30/2003	Yasuo Takebe	61352-046	5764

7590 10/26/2007

MCDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER	
ALEJANDRO, RAYMOND	
ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
10/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/696,505	TAKEBE ET AL.	
	Examiner	Art Unit	
	Raymond Alejandro	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-79 and 82-108* is/are pending in the application.

4a) Of the above claim(s) *1-79 and 82-106* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *107 and 108* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This paper is offered in reply to the 10/05/07 amendment. The 102 rejection of claim 107 has been. The rejections of claim 108 have not yet been satisfactorily overcome. Refer to the abovementioned amendment for details concerning applicant's rebuttal arguments and remarks. Accordingly, the present claims are finally rejected over the same art (claim 108) and over a new ground of rejection (claim 107) as postulated hereinbelow. The present application is being finally rejected for the reasons of record

Election/Restrictions and Claim Disposition

1. Claims 1-79 and 82-106 withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 08/21/06.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 108 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dine et al 2002/0098393.

Dine et al disclose a procedure for shutting down an operating fuel cell system that recirculates a portion of the anode exhaust in a recycle loop, such a procedure includes disconnecting the primary load from the external circuit, stopping the flow of air to the cathode, and applying an auxiliary resistive load across the cells to reduce and/or limit the cell voltage and reduce the cathode potential while the fuel is still flowing to the anode and the anode exhaust is recirculating (ABSTRACT/ P0035-0037/ CLAIMS 1 & 7).

(***Emphasis supplied→***) Dine et al also disclose that upon an uncontrolled shut-down some of the residual hydrogen and some of the oxygen in their respective anode/cathode flow fields diffuse across the PEM (each to the opposite side of the cell) and react on the catalyst to form water (P0009). *Thus, this implies that the cathode receives water after terminating*

operation of the fuel cell, and thus, the restoring operation inherently takes place at the cathode. Therefore, reduction of cathode potential does occur to certain degree.

Fuel cell system of Dine et al comprises a fuel cell 102 comprising an anode 104, a cathode 106, and an electrolyte layer 108 disposed between the anode and cathode (P0027); and a cathode flow field plate 120 and an anode flow field plate 118 for carrying respective reactants (oxidant/air and hydrogen-containing fuel (P0027-0028).

A 35 U.S.C. 102 /103 combination rejection is permitted if it is unclear if the reference teaches the range with "sufficient specificity." Ex parte Lee, 31 USPQ2d 1105 (Bd. Pat. App. & Inter. 1993) (expanded Board). See ***MPEP 2131.03 [R-5] Anticipation of Ranges.***

A REJECTION UNDER 35 U.S.C. 102/103 CAN BE MADE WHEN THE PRIOR ART PRODUCT SEEMS TO BE IDENTICAL EXCEPT THAT THE PRIOR ART IS SILENT AS TO AN INHERENT CHARACTERISTIC. In re Best, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA1977).

"[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)). See ***MPEP 2112 [R-3] Requirements of Rejection Based on Inherency; Burden of Proof.***

6. Claim 108 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ueno et al 2001/0001287.

Ueno et al disclose a fuel cell power generating apparatus 1 using a stack 2 of a plurality of fuel cell units U each having a structure comprising a cathode 3 (ABSTRACT/FIGURES 1-2), an anode 4 and an electrolyte membrane 5 and having a fuel gas supply system 10 that supplies fuel to the anode and an air supply system 40 that supplies air to the cathode (ABSTRACT/ FIGURES 1-2). Separators 6 are disclosed (P0002/0032/FIGURE 2).

The fuel cell system of Ueno et al includes a water supply system 50 that supplies liquid water to the surface of the cathode (ABSTRACT/ CLAIM 1/P0013). Ueno et al disclose that when the fuel cell system is to be stopped, the first gas supplying means (the fuel), then the fuel gas discharge means and then said liquid water supplying means are stopped in this order (P0022). *It is noted that once the fuel gas discharge means is closed, normal operation of the fuel cell commences to cease, thereby a shutdown operation starts to take place. Therefore, Ueno et al implicitly disclose to supply water to the cathode after stoppage of normal operation of the fuel cell. Accordingly, water is supplied after the fuel gas supplying means is closed, and the restoring operation to reduce cathode potential does occur. Therefore, reduction of cathode potential does occur to certain degree.*

Alternatively, Ueno et al also encompass start-up of fuel cell (P0014), notice also that start-up takes place after a shutdown operation. Thus, there is water in the cathode "after terminating operation of the fuel cell".

A 35 U.S.C. 102 /103 combination rejection is permitted if it is unclear if the reference teaches the range with "sufficient specificity." Ex parte Lee, 31 USPQ2d 1105 (Bd. Pat. App. & Inter. 1993) (expanded Board). See ***MPEP 2131.03 [R-5] Anticipation of Ranges.***

A REJECTION UNDER 35 U.S.C. 102/103 CAN BE MADE WHEN THE PRIOR ART PRODUCT SEEMS TO BE IDENTICAL EXCEPT THAT THE PRIOR ART IS SILENT AS TO AN INHERENT CHARACTERISTIC. In re Best, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA1977).

"[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)). See ***MPEP 2112 [R-3] Requirements of Rejection Based on Inherency; Burden of Proof.***

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 107 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuller et al 6068941 in view of Japanese publication JP 08-293314 (hereinafter referred to as the JP'314).

Figure 1 illustrates a fuel cell comprising an anode section 10-12, a cathode section 18-20, an electrolyte membrane 8, and flow field plates 2, 2' (Col 2, lines 10-25/Figure 1); and air line 32 for feeding air (Col 2, lines 38-41) and fuel line 24 for feeding fuel (COL 2, lines 30-35).

Fuller et al disclose a method of operating a fuel cell system having a cathode catalyst, and a cathode reactant flow field comprising: upon shut-down of the fuel cell, introducing a low molecular weight alcohol into the water circulating loop, and at the beginning of a start-up sequence introducing a limited flow of oxidant into said cathode reactant flow field to combust

the methanol (CLAIM 5). Fuller et al disclose a proton exchange membrane fuel cell having a methanol or ethanol fed (*hydrocarbon based material*) fed into the coolant passages during shut-down, and that upon start-up, a controlled amount of air is fed through the cathode reactant flow field so that alcohol diffusing to the cathode catalyst is oxidized (ABSTRACT/ COL 1, lines 4-12/ CLAIM 5). *Note that methanol/ethanol are hydrocarbon-based material which are highly volatile. Further note that Fuller et al disclose that alcohol diffuses to the cathode catalyst. Still further note that the alcohol is introduced into the fuel cell upon shutdown thereof. Therefore, there is a presence of such a hydrocarbon-based material in the cathode upon shutdown of the fuel cell, and thus, restoring operation to decrease cathode potential necessarily occurs.*

Alternatively, Fuller et al also encompass start-up of fuel cell, notice also that start-up takes place after a shutdown operation. Thus, there is also a hydrocarbon-based material in the cathode "after terminating operation of the fuel cell".

Fuller et al disclose a method of operating a fuel cell system as described above. Nonetheless, the preceding prior art reference fails to expressly disclose supplying the specific gas for replacing oxygen and restoring the cathode.

The JP'314 discloses that it is known in the fuel cell art to vaporize propane 23 and supply it to a fuel cell when the supply of city gas is interrupted by an accident (*thus, the operation of the fuel cell is stopped or at least interrupted*); the supply of city gas is detected by a pressure detector 31 to automatically operate a valve for supplying vaporized butane to the fuel cell (ABSTRACT & FIGURE 1). A hydrodesulfurizing device 6 is also used in the fuel cell system (Abstract & FIGURE 1). *It is noted that supplying vaporized butane to the fuel cell system requires certain degree of replacing/purging fuel cell reactant such as oxygen or oxidant.*

In view of the above, it would have been obvious to a person possessing a level of ordinary skill in the pertinent art at the time the invention was made to supply the specific gas for replacing oxygen and restoring the cathode in the fuel cell system of Fuller et at as taught by the JP'314 because the JP'314 directly teaches the suitability of an automatic switching to a spare fuel such as propane to stabilize the power supply by the fuel cell body when the supply of the city gas to the fuel cell is interrupted or stopped. Thus, the JP'314 discloses such a supply of gas as a safety or performance enhancing measure when normal fuel cell operation ceases rapidly.

11. Claim 107 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuller et al 6068941 in view of Japanese publication JP 2003-229156 (hereinafter referred to as the JP'156).

Figure 1 illustrates a fuel cell comprising an anode section 10-12, a cathode section 18-20, an electrolyte membrane 8, and flow field plates 2, 2' (Col 2, lines 10-25/Figure 1); and air line 32 for feeding air (Col 2, lines 38-41) and fuel line 24 for feeding fuel (COL 2, lines 30-35).

Fuller et al disclose a method of operating a fuel cell system having a cathode catalyst, and a cathode reactant flow field comprising: upon shut-down of the fuel cell, introducing a low molecular weight alcohol into the water circulating loop, and at the beginning of a start-up sequence introducing a limited flow of oxidant into said cathode reactant flow field to combust the methanol (CLAIM 5). Fuller et al disclose a proton exchange membrane fuel cell having a methanol or ethanol fed (*hydrocarbon based material*) fed into the coolant passages during shut-down, and that upon start-up, a controlled amount of air is fed through the cathode reactant flow field so that alcohol diffusing to the cathode catalyst is oxidized (ABSTRACT/ COL 1, lines 4-12/ CLAIM 5). *Note that methanol/ethanol are hydrocarbon-based material which are highly*

volatile. Further note that Fuller et al disclose that alcohol diffuses to the cathode catalyst. Still further note that the alcohol is introduced into the fuel cell upon shutdown thereof. Therefore, there is a presence of such a hydrocarbon-based material in the cathode upon shutdown of the fuel cell, and thus, restoring operation to decrease cathode potential necessarily occurs.

Alternatively, Fuller et al also encompass start-up of fuel cell, notice also that start-up takes place after a shutdown operation. Thus, there is also a hydrocarbon-based material in the cathode "after terminating operation of the fuel cell".

Fuller et al disclose a method of operating a fuel cell system as described above. Nonetheless, the preceding prior art reference fails to expressly disclose supplying the specific gas for replacing oxygen and restoring the cathode.

The JP'156 discloses a fuel cell power generating system and a method of purging a fuel cell comprising purging the fuel cell 10 with reformed city gas at the stopping of the system (ABSTRACT). The JP'156 discloses fuel cell 40 being purged using reformed city gas (ABSTRACT). *It is noted that purging the fuel cell system constitutes replacing fuel cell reactant such as oxygen or oxidant. It is also noted that reforming city gas to form reformed gas city does encompass processing the city gas through multiple gas processing devices including a desulfurizing unit.*

By collecting all the above teachings together, it would have been obvious to a person possessing a level of ordinary skill in the pertinent art at the time the invention was made to supply the specific gas for replacing oxygen and restoring the cathode in the fuel cell system of Fuller et at as taught by the JP'156 because the JP'156 directly teaches that rapid purging,

thereby replacement of oxygen, is achieved by using a city gas as it is unnecessary to carry out temperature and moisture control to the city gas.

12. Claim 107 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuller et al 6068941 in view of Japanese publication JP 11-67252 (hereinafter referred to as the JP'252).

Figure 1 illustrates a fuel cell comprising an anode section 10-12, a cathode section 18-20, an electrolyte membrane 8, and flow field plates 2, 2' (Col 2, lines 10-25/Figure 1); and air line 32 for feeding air (Col 2, lines 38-41) and fuel line 24 for feeding fuel (COL 2, lines 30-35).

Fuller et al disclose a method of operating a fuel cell system having a cathode catalyst, and a cathode reactant flow field comprising: upon shut-down of the fuel cell, introducing a low molecular weight alcohol into the water circulating loop, and at the beginning of a start-up sequence introducing a limited flow of oxidant into said cathode reactant flow field to combust the methanol (CLAIM 5). Fuller et al disclose a proton exchange membrane fuel cell having a methanol or ethanol fed (*hydrocarbon based material*) fed into the coolant passages during shut-down, and that upon start-up, a controlled amount of air is fed through the cathode reactant flow field so that alcohol diffusing to the cathode catalyst is oxidized (ABSTRACT/ COL 1, lines 4-12/ CLAIM 5). *Note that methanol/ethanol are hydrocarbon-based material which are highly volatile. Further note that Fuller et al disclose that alcohol diffuses to the cathode catalyst. Still further note that the alcohol is introduced into the fuel cell upon shutdown thereof. Therefore, there is a presence of such a hydrocarbon-based material in the cathode upon shutdown of the fuel cell, and thus, restoring operation to decrease cathode potential necessarily occurs.*

Alternatively, Fuller et al also encompass start-up of fuel cell, notice also that start-up takes place after a shutdown operation. Thus, there is also a hydrocarbon-based material in the cathode "after terminating operation of the fuel cell".

Fuller et al disclose a method of operating a fuel cell system as described above. Nonetheless, the preceding prior art reference fails to expressly disclose supplying the specific gas for replacing oxygen and restoring the cathode.

The JP'252 divulges the use of city gas being reformed in a reformer 22 wherein part of the combustion exhaust gas from the reformer 22 is supplied to a housing 21 of a fuel cell 20 as a PURGE gas with a purge gas blower 38. Further disclosed therein is that during an emergency stop, the total amount of the flow rate of purge gas and the exhausting flow rate of the residual gas is controlled (ABSTRACT/FIGURES 1-2). *Thus, reformed city gas/combustion exhaust gas is used as a purge gas to purge the fuel cell. It is noted that purging the fuel cell system constitutes replacing fuel cell reactant such as oxygen or oxidant. It is also noted that reforming city gas to form reformed gas city does encompass processing the city gas through multiple gas processing devices including a desulfurizing unit.*

In view of the above, it would have been obvious to a person possessing a level of ordinary skill in the pertinent art at the time the invention was made to supply the specific gas for replacing oxygen and restoring the cathode in the fuel cell system of Fuller et at as taught by the JP'252 because the JP'252 directly teaches that purge gas such as reformed city gas/combustion exhaust gas is fed into the fuel cell housing during an emergency stop to regulate efficiency (i.e. temperature profile and operating cost) of the fuel cell system.

Response to Arguments

13. Applicant's arguments with respect to claim 107 have been considered but are moot in view of the new ground(s) of rejection. See items 10-12 supra.

14. Applicant's arguments filed 10/05/07, with respect to claim 108, have been thoroughly examined and considered but they are still unpersuasive.

15. With respect to claim 108, applicant has contended that "*the step of supplying water to the cathode to replace oxygen to decrease a potential of the cathode*" is not taught in the prior art. While it might be true that the Dine et al's and Ueno et al's method of operating their fuel cell does not disclose replacing ALL the oxygen in the cathode by supplying water, one thing that is certain about their teachings is that an amount of WATER is supplied to the cathode after stopping operation of the fuel cell. See rejections of claim 108 above for more details about the Examiner's interpretation or construction of the prior art. Now nowhere in claim 108 is it specified how much oxygen is replaced by water in applicant's method. Hence, the degree or percent of oxygen replacement is fully unknown. In this respect, it is abundantly unclear whether applicant's method intends to replace ALL oxygen or a PORTION thereof from the cathode. As such, the Examiner strenuously asserts that any amount of replaced oxygen READS on applicant's limitation "to replace oxygen". Note further that water as a fluid would likely displace, push or move oxygen from at least a local site within the cathode aspect of the fuel cell. This must occur as water as a fluid is much heavier than oxygen as a fluid, and fluid mechanic phenomenon does govern fluid transport characteristics of the fuel cell system.

16. **Regarding Ueno et al'287**: applicant has commented that "*Ueno fails to disclose the degree to which the potential of the cathode is decreased after shutting down fuel cell*

operation". In reply, (as best understood by the Examiner) the crux here is not that Ueno et al'287 does not at all disclose decreasing the potential of the cathode but that "*Ueno et al'287 fails to disclose the degree to which the potential of the cathode is decreased*" (See applicant's arguments paragraph bridging pages 27-28). A careful consideration of applicant's approach to overcome the reference implies that applicant does agree that Ueno et al'287 discloses certain degree to which cathode potential is reduced but apparently not the claimed degree (i.e. +0.1V to +0.4V). However, since PTO does not have proper equipment to carry out respective analytical or potential test(s), the burden is shifted to the applicant to demonstrate that the prior art does not exhibit the cathode potential reduction as instantly claimed. In short, applicant is requisitioned to show that his invention is neither anticipated nor rendered obvious by this reference.

A 35 U.S.C. 102 /103 combination rejection is permitted if it is unclear if the reference teaches the range with "sufficient specificity." Ex parte Lee, 31 USPQ2d 1105 (Bd. Pat. App. & Inter. 1993) (expanded Board). See ***MPEP 2131.03 [R-5] Anticipation of Ranges.***

A REJECTION UNDER 35 U.S.C. 102/103 CAN BE MADE WHEN THE PRIOR ART PRODUCT SEEMS TO BE IDENTICAL EXCEPT THAT THE PRIOR ART IS SILENT AS TO AN INHERENT CHARACTERISTIC. In re Best, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA1977).

"[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. In re

Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)). See ***MPEP 2112 [R-3] Requirements of Rejection Based on Inherency; Burden of Proof***.

In response to applicant's argument that "the decrease in a potential of the cathode results in an advantage due to oxidation of the catalyst and adsorption of contaminants can be resolved", the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See Ex parte Obiaya, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

17. **As far as Dine et al'393**: applicant has articulated that "*Dine does not disclose the step of carrying out a restoration operation by supplying water to the cathode after terminating operation of the fuel cell*" because "*it cannot be said that water is supplied to the cathode*" as "*hydrogen and oxygen do not become water until after the gases have been supplied to the cathode and have reacted on the catalyst*", and "*recirculation (of hydrogen) is continued until substantially all the hydrogen is removed. The cell may be then completely shut down*". "*Thus, Dine discloses that the shut down of the cell (i.e. termination of operation of the fuel cell) is not finished until the hydrogen and oxygen is supplied to the cathode*". In reply, applicant deserves much credit for going to a great length to explain why Dine et al'393 does not anticipate his invention. However, being overlooked is the fact that Dine et al'393 discloses that "*The recirculation is continued until substantially all the hydrogen is removed. Then, the cell may then be **completely** shut-down*" (See Abstract of Dine et al'393). The phrase "*completely shut down*" here is construed as to shutting down the fuel cell totally, entirely or finally after **all** the hydrogen

is removed. Nonetheless, the operation immediately preceding "the complete shut-down" or "before all hydrogen is removed" can be interpreted as "a partial shut-down" of the fuel cell or "partly/partially shutting-down" the fuel cell before all the hydrogen is removed. So far, applicant's degree of terminating operation of his fuel cell is completely unknown or undefined in the present claims. For that reason, the partial shut-down of Dine et al'393's fuel cell still reads on applicant's undefined degree of terminating operation of fuel cell and does provide certain level of cathode potential reduction while partially shutting-down the fuel cell.

(***Emphasis Added→***) In further support of this position, it is to be noted that the disclosure of Dine et al'393 does imply that shutting-down or terminating operations of a fuel cell can occur either: a) instantaneously, or b) by a shut-down or termination encompassing different fuel cell operating levels or stages before final or total shut-down takes place (i.e. by progressively shutting down the fuel cell or by gradually reaching from 0 % $\Rightarrow$ 100 % of shut down during the step of shutting-down itself).

With respect to applicant's arguments against the Dine et al reference, note that it is disclosed that upon an uncontrolled shut-down some of the residual hydrogen and some of the oxygen in their respective anode/cathode flow fields diffuse across the PEM (each to the opposite side of the cell) and react on the catalyst to form water (Dine et al, P0009). Therefore, this implies that the cathode receives water after terminating operation of the fuel cell, and thus, the restoring operation to decrease cathode potential inherently takes place at the cathode. Thus, Dine et al still contemplate the step of carrying out a restoration operation by supplying water to the cathode, that water being the water formed as a result of the residual hydrogen and oxygen reacting together.

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action (**for claims 108**). Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Raymond Alejandro
Primary Examiner
Art Unit 1795

RAYMOND ALEJANDRO
PRIMARY EXAMINER